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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,366	01/27/2004	Sun-hee Kim	YPL-0073	1569

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EXAMINER	
BERTAGNA, ANGELA MARIE	

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/765,366	KIM ET AL.	
	Examiner	Art Unit	
	Angela Bertagna	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) *6-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/15/04; 8/1/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-5, in the reply filed on September 25, 2006 is acknowledged.

Claims 6-10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 25, 2006.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites, "the vapor deposition is carried out at a temperature of 60-140." This recitation causes the claim to be indefinite, because it is unclear what temperature scale applicant is referring to (e.g. Fahrenheit, Celsius, Kelvin). Since the specification refers to a temperature

range of 60-140°C (page 5), this range has been used for prior art purposes. Appropriate clarification is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Veerasamy et al. (US 6,277,480 B1; cited on IDS).

Regarding claim 1, Veerasamy teaches a method of treating a surface of a substrate used in a biochemical reaction system, the method comprising:

forming a polymer film on the surface by vapor deposition of a compound of formula (1) below and a compound of formula (2) below:

$(RO)_3$--Si--$(CH_2)_{n1}$--X (1)

$(RO)_3$--Si--$(CH_2)_{n2}$--$(CF_2)_m$--X (2)

wherein R is one of a methyl group and an ethyl group, X is one of a methyl group and a trifluoromethyl group, n1 is an integer from 1 to 3, n2 is an integer from 1 to 10, and m is an integer from 1 to 10 (see abstract where Veerasamy teaches coating a fluoroalkylsilane on a substrate; column 8, lines 42-59 teach specific examples of FAS compounds to be coated on the substrate alone or in combination; $CF_3(CH_2)_2Si(OCH_3)_3$ (column 8, lines 52-53) is a compound of formula (1) above; $CF_3(CF_2)_5(CH_2)_2Si(OCH_2CH_3)_3$, $CF_3(CF_2)_7(CH_2)_2Si(OCH_3)_3$, and CF_3

$(CF_2)_5(CH_2)_2Si(OCH_3)_3$ (column 8, lines 52-56) are are compounds of formula (2) above; column 18, lines 17-21 teach deposition of the FAS compounds by any suitable method; column 9, lines 5-39, for example, teach vapor deposition).

Regarding claim 4, Veerasamy teaches vapor deposition at 70°C (see column 16, line 64 – column 17, line 1; see also column 17, lines 9-11 and column 18, lines 22-30).

Regarding claim 5, Veerasamy teaches that the substrate is made of silicon or glass (column 1, lines 13-18 and column 16, lines 25-26 teach a glass substrate).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veerasamy et al. (US 6,277,480 B1; cited on IDS).

Veerasamy teaches the method of claim 1, as discussed above.

Veerasamy expressly teaches deposition of a combination of compounds of formula (1) and formula (2) onto the substrate (column 8, lines 58-59 teach deposition of combinations of compounds; the compounds of formulas (1) and (2) taught by Veerasamy have been cited above).

However, Veerasamy does not specify whether the combinations of FAS compounds are deposited sequentially or simultaneously.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use any order of deposition of the FAS compounds taught by Veerasamy, as MPEP 2144.04 IV.C notes "Selection of any order of mixing ingredients is prima facie obvious." Here, there is no particular reason why sequential or simultaneous deposition would have any effect on the reaction or the final product other than to add the first compound first and the second compound last. Therefore, in the absence of any evidence of unexpected results with regard to the order of addition, either sequential or simultaneous deposition of the compounds of formula (1) and formula (2) is prima facie obvious as noted by the MPEP section above.

7. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hozumi et al. (Langmuir (1999) 15(22): 7600-7604; cited on IDS).

Hozumi teaches a method of coating silicon substrates comprising vapor deposition of FAS compounds (see abstract).

Regarding claim 1, Hozumi teaches a method of treating a surface of a substrate used in a biochemical reaction system (see page 7600, column 2 – page 7601, column 1), the method comprising:

forming a polymer film on the surface by vapor deposition of a compound of formula (1) below or a compound of formula (2) below:

$(RO)_3$--Si--$(CH_2)_{n1}$--X (1)

$(RO)_3$--Si--$(CH_2)_{n2}$--$(CF_2)_m$--X (2)

wherein R is one of a methyl group and an ethyl group, X is one of a methyl group and a trifluoromethyl group, n1 is an integer from 1 to 3, n2 is an integer from 1 to 10, and m is an integer from 1 to 10 (see page 7601 where Hozumi teaches coating a fluoroalkylsilane on a silicon substrate by vapor deposition; FAS-3, with a chemical formula of $CF_3(CH_2)_2Si(OCH_3)_3$, is a compound of formula (1), see page 7601; FAS-5 and FAS-7, with chemical formulas of $CF_3(CF_2)_5(CH_2)_2Si(OCH_3)_3$ and $CF_3(CF_2)_7(CH_2)_2Si(OCH_3)_3$, respectively, are compounds of formula (2), see page 7601).

Regarding claim 4, Hozumi teaches vapor deposition at 100°C (see column 16, line 64 – column 17, line 1; see also column 17, lines 9-11 and column 18, lines 22-30).

Regarding claim 5, Hozumi teaches that the substrate is made of silicon (page 7600, column 1).

Hozumi teaches deposition of one of FAS-3 or FAS-5 or FAS-7 on the substrate, rather than a combination of either FAS-3 and FAS-5 or FAS-3 and FAS-7 (see page 7601, column 2).

It would have been prima facie obvious for one of ordinary skill in the art at the time of invention to coat a substrate simultaneously or sequentially with a combination of the FAS

compounds taught by Hozumi. MPEP 2144.06 states that "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). Since Hozumi expressly taught that the FAS compounds were useful for the same purpose (repelling water, see abstract and page 7601), an ordinary practitioner would have been motivated to coat a substrate with a combination of the compounds (for example, FAS-3 and FAS-5, FAS-3 and FAS-7, or FAS-5 and FAS-7), in order to obtain a water-repellant substrate. Regarding the order of deposition, MPEP 2144.04 IV.C notes "Selection of any order of mixing ingredients is prima facie obvious." Here, there is no particular reason why sequential or simultaneous deposition would have any effect on the reaction or the final product other than to add the first compound first and the second compound last. Therefore, in the absence of any evidence of unexpected results with regard to the order of addition, either sequential or simultaneous deposition of a combination of the FAS compounds taught by Hozumi is prima facie obvious in view of the MPEP sections cited above.

Conclusion

No claims are currently allowable.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi et al. (US 5,250,322) and Kato et al. (US 5,571,569) teach films comprising fluoroalkylsilanes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela Bertagna whose telephone number is (571) 272-8291. The examiner can normally be reached on M-F 7:30-5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Angela Bertagna
Examiner, Art Unit 1637
September 29, 2006

amb

JEFFREY FREDMAN
PRIMARY EXAMINER
10/5/06